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WITHOUT LIGATURE OF THE CERVIX, IN OPERATION FOR UTERINE FIBROIDS. A NEW METHOD.

CASES OF CHRONIC OVARIAN ABSCESS

ILLUSTRATING THE DANGER OF DELAY IN THEIR PROPER MANAGEMENT.

DRAINAGE IN ABDOMINAL SURGERY,

ITS UNNECESSARY AND EXCESSIVE USE.

BY

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SUPRA-VAGINAL HYSTERECTOMY WITHOUT LIGATURE OF THE CERVIX, IN OPERATION FOR UTERINE FIBROIDS. A NEW METHOD.

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It is my purpose to bring before the Society my own experience in the management of the cervix in supra-vaginal hysterectomy with a method which I believe to be worthy of consideration and trial, rather than to present a statistical paper upon a subject about which so much has recently been written. If this method prove as satisfactory and successful in the hands of others as it has in my own, I believe it will grow in favor and eventually supplant total extirpation and the other methods in nearly all cases.

My experience with the method is based upon a series of nine consecutive cases, all of which have made a quick recovery, and with scarcely an elevation of the temperature.[1] The majority of these cases may be classed as difficult, three of them extremely so, thus putting the method to a severe test. Moreover, these operations have all been performed within the past year, and during the same period I have removed the uterus five times by total extirpation—four for malignant disease, and one for fibroid tumor. I have, therefore, had ample opportunity within a short space of time to observe and compare the advantages and disadvantages of the two methods.

[1] Since this paper was written I have operated upon the tenth case, with a fatal result; but the death was in no wise due to the method of treating the pedicle, as the report will show.

My first operation by this method was done on October 2, 1891, and the case was reported to the Philadelphia Obstetrical Society at the October meeting. Some of the subsequent cases were reported and published in the Society's *Transactions* as they occurred.

There is at least one point in hysterectomy which may be regarded as practically settled, namely, that the extra-peritoneal treatment of the pedicle by the serre-nœud and fixation in the lower angle of the wound, as practised by Péan, Bantock, and others, has had its day and is gradually being abandoned. Péan himself, to whom the credit is due of having first devised a rational method for the extra-peritoneal treatment of the pedicle, declares that he has now instead adopted total extirpation. By this action Péan has simply reaffirmed his fear of the faulty intra-peritoneal method, and has gone to the opposite extreme in thus placing himself in line with those who leave no cervix at all.

Almost as much may be said of this intra-peritoneal method, which is that of the late Dr. Carl Schröder; for Dr. A. Martin, of Berlin, who has been the great exponent of this method since Schröder's death, has abandoned it, also in favor of total extirpation. We should not be surprised at this; the wonder is that these constricting methods, which are alike except in their final location, were so long in vogue, for the strangulation of the pedicle is opposed to the primary principles of enlightened surgery. Doubtless all abdominal surgeons who have had experience with hysterectomy have realized the unscientific practice of constricting the pedicle, either *en masse* or in sections, whether it was to be located within or without the abdominal cavity. But the fear of hemorrhage without such constriction, and the danger of sloughing with it, had caused the extra-peritoneal to be the most favored method until total extirpation was introduced.

The device of Drs. J. R. Goffe and A. P. Dudley, of New York, and that of Dr. H. J. Byford, of Chicago, which provide for the discharge of the sloughing pedicle through the vagina, and are, therefore, essentially extra-peritoneal methods, may be improvements on the abdominal fixation of the pedicle; but, like the latter, they also constrict the muscular tissue of the cervix, and thus lack the primary factor of a perfect technique.

According to Dr. Florian Krug, of New York, who has written an excellent paper recording his experience with it, the credit of having "the priority of applying Freund's method of extirpating the cancerous uterus to fibromatous changes of the same, belongs to Prof. Bardenheuer." But in this country the method is known as Eastman's, after Dr. Joseph Eastman, of Indianapolis. Dr. Eastman was a strong advocate of the extra-peritoneal fixation of the pedicle in the abdominal wound until he met with a case in which it was impossible to form a pedicle of sufficient length to be thus treated, and being opposed to the intra-peritoneal method, because of a disastrous experience which he had had with it, was induced to finish the operation by total extirpation. He was so well pleased with the result that he has since, I believe, practised this method in all cases.

These facts point to but one conclusion: that the operation of total extirpation was born under the influence of fear and not from choice—fear of danger from hemorrhage and from subsequent sloughing if the pedicle were treated otherwise than by some extra-peritoneal method, either by fixation in the abdominal wound or in the vagina; for is not this total extirpation method simply another form of treating the pedicle outside?

It is claimed that total extirpation does not leave a stump; but this claim is not valid, for anyone who has performed this operation is well aware that there is not only one stump but several which must separate and come away by a sloughing process. It is true it has the advantage of furnishing drainage through the opened vagina, and it is well that it does so, for drainage is quite necessary after this method.

Now, I believe total extirpation to be unnecessarily radical; for, even though the mortality should prove to be not any greater, the disadvantages in prolonged operation, greater mutilation, and consequent sloughing, followed by contraction and deformity of the vagina, make this operation one to be avoided in all cases of non-malignant disease, if the supra-vaginal operation can be done by a method which is devoid of the objections which have always attended it.

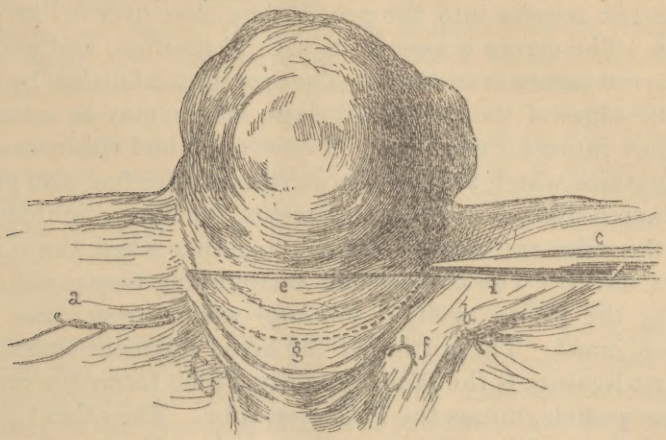
The ideal method will be the one which is certain to be safe against hemorrhage and sloughing, and which at the same time leaves the cervix in its natural anatomical position. This I be-

lieve to be possessed in an eminent degree by the operation which I shall now describe.

Method.—After the required abdominal incision is made, all existing adhesions of omentum, intestines, etc., are separated in the usual way, and the tumor lifted out of the abdominal cavity. If the incision has been an unusually lengthy one, several sutures are then placed at its upper end for the better protection of the intestines. The patient may now be elevated to the Trendelenburg posture, if deemed best, and the parts thoroughly studied, so that a clear idea as to the character and location of the tumors and pedicle may be obtained before the ligation and separation are begun. The first step in the operation is the passing of a *single* silk ligature through the broad ligament near the cervix. This ligature is again made to transfix the broad ligament near its outer edge, to prevent slipping ; it is then tied. A stout pedicle forceps is next placed under the Fallopian tube and ovary, and made to grasp the broad ligament for the purpose of preventing reflux from the uterus. The ligament is now severed just below the forceps, the incision being carried close to the tissues of the tumor. If deemed necessary, another ligature is now passed through the broad ligament farther down along the side of the cervix. This ligation and cutting are now repeated on the opposite side. The knife is then run lightly around the tumor an inch or two above the peritoneal reflection of the bladder in front, probably a little lower behind, and the severed edge of the peritoneum stripped down with the handle of the scalpel for the purpose of making peritoneal flaps. The next step is a most important one; it is the ligation of the uterine arteries. This is done in the broad ligaments, outside of, but close to, the cervix. Care must be taken to avoid the ureter on the one hand and the cervical tissue on the other. The ligature may either be placed within the folds of the severed ligament, or, which is preferable, made to encircle the double fold of the ligament and artery in one sweep; action here will depend upon the size of the pedicle and the consequent separation of these folds. The constant traction which is made upon the pedicle by the assistant who is holding the tumor, serves to draw out and elongate the cervix after the peritoneal covering has been incised, and to thereby permit deeper incision into the neck,

which is next amputated with the knife by a sort of cupped incision. The stump is now grasped with a small volsella forceps,

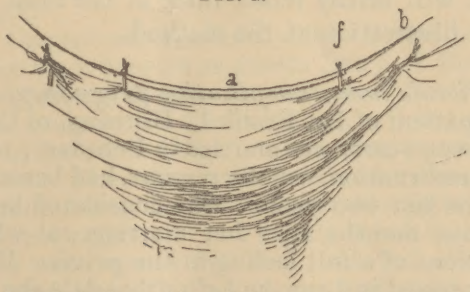
FIG. 1.



a, Position of first ligature, transfixing broad ligament and including ovarian artery and veins ; *b*, same tied ; *c*, pedicle forceps grasping broad ligament under Fallopian tube and ovary to prevent reflux from uterus, when *d*, broad ligament, is severed just below forceps ; *e*, incision of peritoneum above reflection of bladder, and the peritoneum stripped down below *g* ; *f*, ligature transfixing broad ligament at side of cervix, including uterine artery ; *g*, dotted line, excision of tumor and amputation of cervix.

and further trimmed and reduced, if necessary, so that the *entire supra-vaginal portion is removed* before it is dropped back into the

FIG. 2.



a, Centre line, infolded edges of broad ligament lying closely in contact, having been rendered taut by ligatures *f* and *b*, which have included both layers of the broad ligaments and ovarian and uterine arteries and veins.

pelvis. The cervix being now released, it immediately recedes and is drawn deeply into the pelvis by the retractive and elastic

properties of the vagina, where it is buried out of sight by the peritoneal flaps covering it. These flaps have been rendered so taut by the ligatures which have been placed that, usually, as the cervix recedes into the pelvis, they close over it like elastic bands. The cervix is now in its natural position, and *without a ligature or suture in its tissues.* The operation is finished by infolding the edges of the peritoneal flaps, which may be secured by Lembert sutures if necessary. I have not found this necessary if the ligatures which secured the uterine arteries had also grasped the severed folds of the broad ligaments, for this so tightens them that the sides are brought forcibly together when the cervix is drawn under. The bladder and surrounding tissues aid also in closing the pelvic cavity. *Nothing whatever is done to the cervical canal.* The portion of the broad ligament embraced in the first ligature is the same structure which forms the ordinary ovarian pedicle, minus the Fallopian tube. The other ligatures close the opened broad ligament, as a rule. If any other vessels are found spurting, they are, of course, ligated. I have not found it necessary to employ the temporary elastic ligature. (Figs. 1 and 2.)

The steps of the operation vary somewhat to suit the complications which may be present in the individual case, but the general direction and the conclusion are practically the same in all cases. (I employ Chinese silk in all my abdominal operations.)

I do not wish to tire the Society with a detailed report of all the cases, but will briefly relate three of the most difficult ones for the better illustration of the method.

CASE I. *Fibroid tumor complicating pregnancy; hysterectomy.* —Mrs. H., a patient of Dr. Frank L. Horning, of Camden, N. J., aged thirty-seven years, was married in February, 1891. Puberty at sixteen ; menstruation, usually regular, had become rather profuse during the last two years. She considered herself in good health until five months after her marriage, at which time she became conscious of a full feeling in the pelvis. Her catamenia had been suppressed in June, and after that date she had not menstruated. About September 1st she was suddenly attacked with severe pain in the pelvis and along the course of the sciatic nerves. She also suffered severely from rectal and vesical tenesmus. Dr. Horning was now called, and examination revealed to him that there was some serious pelvic trouble existing. My

brother, Dr. J. S. Baer, then saw the patient with Dr. Horning, and corroborated the latter's suspicions of fibroid tumor complicating pregnancy. On September 28th, through the kindness of these gentlemen, I first saw the patient. She was extremely anæmic and decidedly cachentic.

Examination showed the abdomen distended by an irregular growth which extended above the umbilicus, being larger on the right side, and separated by a dumbbell-like constriction. The portion on the right side was rather globular, and conveyed a boggy, semi-fluctuating sensation, while that on the left was quite firm, at one point having a projection of almost bony hardness. *Per vaginam*, the pelvis was occupied by a firm, hard mass as large as a child's head. It was impacted and immovably fixed. The cervix uteri could not at first be found, but deep pressure finally located it above the transverse ramus of the pubic bone, and almost out of reach of the finger, where it was flattened between the bone and the tumor. By combined palpation the globular mass on the right side was shown to be continuous with the cervix. The usual mammary changes of pregnancy at the fourth month were present. The diagnosis of probable fibroid tumor complicating pregnancy at the fourth month was confirmed.

In view of the grave condition of the patient and the location and character of the tumor, it was imperative that an operation for her relief should be at once performed. The apparently rapid growth of the tumor and the cachectic appearance of the patient, which, according to her statement, had been of recent development, together with the peculiar location and relation of the tumor to the uterus, suggested the possibility that the fibroid, under the stimulus of gestation, might have become sarcomatous. The patient entered the Polyclinc Hospital on September 29th.

Operation, *October 2d*, assisted by Drs. Dorland, Gibbon, and Knipe. There were present as guests Drs. J. S. Baer and Horning, several members of the faculty, and the physicians in attendance as students at the Polyclinic. I began by making an incision four inches in length, when the pregnant uterus was exposed to view. The organ was above and resting on the right side of the tumor, being connected with the latter by a pedicle about two inches in diameter. The left broad ligament and the tube and ovary were spread out and stretched over the tumor. Passing my hand beneath the uterus and over the tumor, I found the latter very firmly fixed in the pelvis, not, however, by inflammatory adhesions. The incision was now increased, when the uterus emerged from the abdomen. An effort to dislodge the tumor failed until I had made an opening, into which I hooked

my fingers as a fulcrum, and then by a rotary motion and traction I succeded in dislodging the mass. The propriety of removing the tumor and leaving the pregnant uterus was now considered, but further examination showed that the organ contained another tumor imbedded in its wall ; there were also several malignat-looking white protuberances on its surface. I therefore determined upon hysterectomy. The operation was concluded as described, although the different steps were not carried out in the same order, for it was during this operation that the method was evolved. The patient made an uninterrupted recovery, being apparently convalescent from the beginning. The pulse at no time reached 100, and the highest temperature registered was $99\frac{3}{5}°$. The sutures were removed on the seventh day ; union complete. This patient was examined only last week. She is in excellent health.

CASE II. *Hysterectomy for a large fibro-cystic tumor of the uterus degenerating from electro-puncture.* — Miss D., aged forty-two years, was brought to me by her physician, Dr. A. P. Hull, of Montgomery, Pa., in October, 1891. For some years she was aware that she had a growing tumor in the abdomen, and about five years ago a diagnosis of fibroid tumor of the uterus was made. She was treated by ergot, chloride of ammonium, and other remedies until two years ago, when electric treatment was commenced and continued until she was so ill that it had to be discontinued.

The abdomen was greatly enlarged by a multinodular mass which seemed to be adherent to the abdominal wall. She was considerably emaciated, and had suffered so much pain that she had become addicted to the opium habit. *Per vaginam*, the pelvis was occupied by a solid mass as large as a child's head. The mass extended upward and was continuous with the abdominal growth. There was obscure fluctuation in the upper portion of the tumor, but the bulk of the growth was solid. The patient was generally in a bad condition for operation. But she was importunate for relief, and I decided in favor of what proved to be one of the most difficult operations that I have ever performed.

Operation October 24, 1891. An incision six inches in length showed the tumor to be universally adherent. At several points where the tapping trocar and electro-puncture had entered there were strong organized bands which required cutting with scissors. Further examination showed the tumor to be sub-peritoneal and presenting an extremely vascular surface. The lower portion occupied the pelvis, and the outlook for the formation of a pedicle seemed obscure. I was puzzled how to proceed. Finding a place free from intestines and less vascular, I plunged a

trocar into the tumor. About a gallon of fluid resembling pus escaped, but the mass was still very large. At length I got the upper portion through the incision, but it dragged the intestines with it. In its growth the tumor had unfolded the right broad ligament and had burrowed up under the peritoneum, carrying the cæcum with it and causing the colon to crown its upper portion. The cæcum was closely attached to the right side of the tumor under the liver. I began to release the cæcum by dissecting it off from the tumor, but soon found that this was a mistake, for I not only encountered some very large veins, but I would have been compelled to separate the entire colon from the tumor. I then commenced on the opposite side of the tumor, and found, to my delight, that it could be very readily shelled out from beneath the peritoneum as from a capsule. I felt greatly relieved that I had not proceeded as I had begun. When the pelvic portion was brought up a large mass of veins was uncovered, and an immense vascular cavity resulted. The hemorrhage, which before had been only slight, was now considerable. The uterus and pelvic tumor formed one mass. The ligatures were now quickly placed on the arteries, the tumor severed, and the cervix released. But the large veins of the capsule could not, of course, be included in these ligatures, and required special care. They were ligated *en masse*, but they still bled from below, and soon had formed a large hæmatocele which broke and a terrific hemorrhage occurred. I now quickly packed the pelvis with sponges and folded towels, and, while Dr. Dorland applied all the pressure he could force upon them, I proceeded to place the abdominal sutures. On removing the compress another great hæmatocele had formed, and seemed ready to burst. I at once decided to close the abdomen and apply external pressure. This was immediately done, and a large compress of pads and towels laid over the wound and strapped firmly in position with adhesive plaster. The patient was now pulseless and her respirations only gasping. All present thought she would certainly die on the table. But she rallied under stimulus and made a good recovery. She was kept in the dorsal position for some days on account of the hæmatocele, and during this time a bedsore formed which gave her considerable annoyance. She went home on November 22d, less than four weeks after the operation.

I do not believe that any other method would have saved this woman's life. The pedicle could not have been fixed in the abdominal incision, and total extirpation would have taken a much longer time. (Estimated weight of tumor, fifty pounds.)

I met this patient by appointment in the office of Dr. Hull on July 15, 1892, nine months after the operation. She had gained

so much flesh and was looking so well that I did not recognize her. Examination showed the cervix and pelvic tissues so nearly like the normal condition that it would have been difficult to tell that the uterus had been removed.

Case III. *Multiple fibroid tumor incarcerated in the pelvis, complicated with great hypertrophy of the bladder; hysterectomy.* —Mrs. W., aged forty-nine years; sterile. During the last ten years she had suffered from pelvic pain, pressure symptoms, and hemorrhage. After the time when the menopause should have occurred she suffered more. Recently there had been a constant slight metrorrhagia. For several years she had difficulty in emptying the bladder, and at times catheterization was necessary. During the previous few months this had become a very distressing symptom.

The pelvis was literally packed with a multinodular tumor, the upper portion extending into the hypogastrium. One nodule was firmly wedged against the urethra, so that the catheter could only be passed with difficulty. The bladder was distended and contained a quart of partly decomposed urine.

Operation, *March* 26, 1892. The bladder was found spread over the tumor, and it was only by extreme care that I avoided wounding it. The tumor was surrounded by organized adhesions which glued it firmly to intestines and bladder. It was fixed as if wedged into the pelvis. In its growth it had so distended the broad ligaments that they could not at first be identified. After half an hour of dissecting and tugging at the tumors I succeeded in elevating the mass to a certain extent, but could not get it through the incision because of its deep pelvic location. The bladder was stripped down with the anterior peritoneal flap, and it was so large that it was necessary to have it held forward over the pubes, where it was wrapped in hot sterilized towels. I then incised the uterus and began to enucleate the tumors. Six were removed in this way, the largest being about the size of a goose's egg and almost as hard as a billiard ball. The tumor was now collapsed enough to permit me to proceed with the operation in regular order as described.

The traction, which had been continued during the operation, had so drawn out the cervix that I was enabled to make deep amputation. The vaginal portion, being released, was drawn into the pelvis by the retractive power of the tissues and covered by the peritoneal flaps and bladder. There was not any hemorrhage, and the pelvic cavity was seen to be clean and smooth. The ligatures had so tightened the broad ligaments that after the cervix was severed they as effectually covered the raw surfaces as if a row of sutures had been applied for the purpose. I therefore

concluded the operation by simply infolding the peritoneal edges and without placing a single coaptating suture. The result was most gratifying, for the patient made an excellent recovery, her convalescence being afebrile. I do not think there was a single post-operative symptom to cause anxiety.

In my eighth case the pedicle was treated in a similar manner (that is, without coaptating sutures to the infolded peritoneal flaps) and with the same result, but I was afforded an opportunity in this instance to examine the pedicle eight days after the operation. I removed the sutures on the morning of that day and found union complete. During the afternoon the patient had an attack of sneezing, and soon afterward it was found that the dressings were bloody. Examination then revealed the incision entirely separated and several feet of the small intestine protruding. An effort was made to replace this, but it seemed to be strangulated, and before I could reach the patient it had been out several hours. Ether was administered and the bowel replaced with difficulty. The patient was then placed in the Trendelenburg posture and the pelvic cavity carefully examined. The infolded peritoneal edges had united firmly, and the four ligatures which had been used in securing the bloodvessels were covered with lymph, so that they were out of sight. I then reapplied the sutures in the abdominal wound. Although a good deal shocked from the fright and the necessary manipulation, the patient made another good recovery and is well at this time.

CASE X. *Multinodular fibroid tumor with strong pelvic adhesions resulting from electro-puncture, complicated with a large goitre; hysterectomy; death.*—M. X., aged forty-nine, single, began to suffer from metrrorhagia ten years ago, which had increased in quantity and frequency until eight years ago, when she was compelled to seek medical aid. She had been under treatment ever since, which included both internal and local medication, such as ergot, chloride of ammonium, the curette, and electricity. She had been a great sufferer from pressure symptoms, sacral pain, and constipation. During the menstrual congestion, pressure upon the rectum and bladder was especially severe. Although the tumor did not grow rapidly, and was probably held in abeyance by the treatment employed, her symptoms grew worse, until she was finally urgent that something more radical should be done.

Examination. The abdominal wall was quite fat, but a hard, nodular tumor, extending above the umbilicus, was easily defined. *Per vaginam*, the cervix uteri could not be reached because of the presence of a nodular mass which entirely filled the pelvis and displaced the cervix above the pubic bone. The pelvic tumor appeared to be firmly adherent and could not be moved. In

addition, the patient had a large goitre which so pressed upon the trachea as to render breathing labored, and her circulation was in consequence impaired. Presaging difficulty with the respiration during anæsthesia, and with the pelvic tumor, I nevertheless, at the patient's earnest solicitation, consented to operate, and did so on September 8th.

My fears with regard to the respiration were at once realized, for she breathed with more difficulty as anæsthesia progressed, and was more or less cyanosed during the entire operation, which was rendered unusually prolonged and difficult because of the deep location and very firm adhesions of the pelvic tumor. Indeed, these adhesions were so dense that I was compelled to leave a small portion attached to the cæcum. At one time during the dissection I was sure the bowel had been wounded, for material resembling fecal matter escaped; but this was found, on further examination, to be degenerated tumor substance. The operation was finally concluded, and in this case I coaptated the peritoneal edges with a row of sutures. The patient never rallied from the difficulty in respiration, and died thirty-six hours afterward. The urine drawn after the operation contained blood, and venous blood was vomited both during and subsequent to the operation, all of which showed a bad condition of the circulatory apparatus.

Post-mortem. There was not the slightest evidence of peritonitis, and the pelvic condition was about as I had left it after the operation. A little bloody serum was found in the pelvis and there was very little evidence of post-operative reparative change, showing that the vitality had been at a low ebb from the beginning.

Of course, the method of treating the pedicle did not influence the result in this case, for nothing would have saved her life under the circumstances. This was one of those long-delayed cases which had been advised to wait until the menopause for cure, and which in the meantime had been the subject of much treatment for the amelioration of the symptoms.

It is strange how the belief obtained a foothold in the profession, that fibroid tumor of the uterus was so benign in character that it did not cause any suffering of consequence, and that it would disappear after the menopause, for nothing could be much further from the truth. The menopause does not often have such influence upon these tumors; on the contrary, they often take on renewed growth at that age. One of the cases in this series had been under my care for six years for symptoms caused

by a small fibroid tumor which only began to grow rapidly after she had reached the forty-sixth year; and nearly half of them were beyond that age at the time of the operation. Recent literature on this subject shows that this is now the generally accepted opinion of those who have had much experience in the management of these tumors (notably papers by Drs. J. Taber Johnson and S. C. Gordon).

Can anything more be said of the non-surgical means which have been used for the cure of these cases? I think not. Even electricity must take its place among the remedies which we have learned to regard as simply palliative and not curative. Furthermore, electricity must be regarded as a dangerous remedy, for it not only fails to cure, but leaves the tumors in a bad condition for subsequent surgical management. The most difficult hysterectomies and myomectomies that I have performed were cases that had been previously treated by electricity. I cannot say certainly that the electrical treatment was the cause of the trouble, for I cannot prove it, but the coincidences have been remarkable. Not only did electricity fail to cure these cases, but, for some reason, during the course of the treatment the patients had one or more attacks of peritonitis. The growths were universally adherent. One contained a large quantity of pus (Case II), and others had evidences of old suppuration around the tumor. In not a single case treated by electricity have I seen more than temporary benefit.

After considerable experience in the management of fibroid tumors and the application of most of the remedies which have from time to time been advocated, I have come to the conclusion that the only rational means of treating these cases is by the aid of surgery. When such results may be obtained as we are now able to show with surgical methods, we should no longer permit these patients to suffer on through the best years of life in the delusive hope of reaching a safe haven at the menopause, nor should we waste valuable time with remedies which we know are not curative.

Early hysterectomy for fibroid tumor is as important as early ovariotomy, and when the technique can be rendered as perfect as that of ovariotomy, the result will be equally good.

I believe the method advocated in this paper comes as near as possible to being technically correct, for the following reasons:

1. It is secure against hemorrhage, because the bloodvessels are ligated outside of the muscular tissue of the cervix; and against sloughing, because these tissues are entirely free from a constricting ligature or suture.

2. It removes all of the supra-vaginal tissue, but does not open the vagina, thereby permitting the vaginal portion of the cervix to remain attached and *in situ*, to maintain its position as the keystone of the arch, and to preserve the strength and anatomical shape of the lower portion of the abdominal cavity.

3. The raw end of the stump is retracted deeply in the pelvis, where it is surrounded and covered by the other raw surfaces and the peritoneal flaps, which, by the method of ligating, are made to press firmly upon these tissues, and immediate union doubtless occurs.

4. The pelvic cavity, when the operation is finished, has its natural lining of peritoneum, and is free from the danger of contamination from a sloughing pedicle, open vagina, or a drainage-tube.

5. The parts are left in their natural relation with one another, and are free from the distortion and displacement of the bladder and intestines which result from fixation of the pedicle in the abdominal incision.

6. It is not unduly mutilating, requires the minimum number of ligatures, and is applicable to the worst cases.

7. Both the operation itself and the convalescence are shorter than by any other method.

The unpleasant and often painful and dangerous sequelæ, as hernia, fistula, etc., are absent.

[NOTE.—Since the meeting of the Society I have operated upon ten additional cases by this method. The patients have all made a smooth recovery and without the slightest evidence of trouble in the pedicle. In none of the twenty cases did the temperature rise above 100°.]

CASES OF CHRONIC OVARIAN ABSCESS ILLUSTRATING THE DANGER OF DELAY IN THEIR PROPER MANAGEMENT.[1]

Drainage in Abdominal Surgery: Its Unnecessary and Excessive Use.

By B. F. BAER, M.D.,

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Gentlemen: The case that I shall bring before you for operation to-day is one that I have diagnosticated as chronic abscess of the right ovary. But before beginning I wish to describe to you a very interesting and difficult case upon which I operated yesterday. The lady is a private patient, but two of your number assisted at the operation.

Case I.—Mrs. X., aged thirty; widow seven years; one child eight years ago after a normal labor. Soon after the death of her husband she was attacked with symptoms of pelvic inflammation and abscess with final discharge of the latter into the bowel; she was confined to bed a number of months, and narrowly escaped death from sepsis. During this illness the right knee-joint was the seat of a septic inflammation, and has been ankylosed ever since. But she finally made an apparent recovery.

I say apparent, because the recovery is seldom real in cases of this character, for the reason that the disease is organic, either of the ovary or Fallopian tube, in almost every instance. The centres of irritation are usually multiple, so that, even if one abscess cavity does become obliterated by Nature's reparative forces, another is ready to form on slight provocation. The history of this case follows the rule, for it was not long after the recovery from the first illness until another attack occurred and she went through a similar course of disease. This was repeated over and over again during the intervening years, and the case ultimately came to be regarded by her physicians (for she went from one to another) as one of incurable pelvic abscess.

Two years ago she was advised to undergo an operation, but was dissuaded on account of her low condition, and the fear that

[1] A Clinical Lecture delivered at the Philadelphia Polyclinic.

she would not recover. Under medication and change of air she improved, but two months ago she had another exacerbation of the symptoms. Since then she has shown evidence of rapid breaking down. In connection with the local pelvic trouble she has spells of the most violent vomiting. She also suffers frequently from erysipelas of the face, another evidence of her chronic septic state. To add to her already long train of serious symptoms it must be stated that she has metrorrhagia two weeks out of the four.

When I first saw the patient, two weeks ago, examination revealed the uterus a little to the right of the centre of the pelvis, where it was firmly fixed and wedged by a tumor on either side of it, the whole forming one mass. The tumor on the left side filled that portion of the pelvis and extended into the left iliac region; it was very tender upon pressure, semi-fluctuating, and firmly fixed. The mass to the right of the uterus was similar as to location and character, but it was smaller. The temperature at this time was 103°, and she had occasional rigors and sweating.

I made a diagnosis of double ovarian abscess with a fistulous track from the right tumor into the bowel. Operation was advised and was performed yesterday as stated.

The intestines and omentum were found matted and closely adherent to the pelvic mass. The inner surface of the tumors lay in contact behind the uterus. Dissection was at once begun, and by careful persistence the larger tumor was uncovered sufficiently for its character and relation to the adjacent parts to be revealed. It was firmly adherent to the entire posterior surface of the broad ligament and to the bowel. A trocar was now plunged into it and pus of the most fetid character began to flow.

After the pus cavity had been emptied, irrigation with hot water was begun, some of the water being made to flow through the canula and into the cavity of the tumor. This diluted and washed away the remainder of the pus contained within it. The canula was now removed and the dissection continued. Finally, after probably fifteen minutes of continuous effort, the tumor was separated. Many bloodvessels were opened and hemorrhage was quite free. A ligature passed deeply through the broad ligament, and tied upward around the tube close to the uterus, controlled the bleeding entirely. The tube was not removed because it was not diseased, and further, because it was so closely connected with the very vascular and hypertrophied broad ligament. The ligation, under the circumstances, was better than removal.

Irrigation was continued until the water returned clear, when

attention was given to the tumor on the right side. This tumor was so deeply seated that the fingers could scarcely reach it, and it was extremely adherent. It was hidden from view by the broad ligament and the Fallopian tube, which were stretched over it. My abdominal retractor served a good purpose here, for by hooking it over the tube and pulling the ligament aside the tumor was beautifully exposed to view. I then began by gradually working my finger through a thick, organized false membrane, when I inadvertently opened an abscess and pus of a very fetid character escaped. Irrigation was now again commenced, and after the pus was washed out the dissection was continued under continuous irrigation. I finally succeeded in shelling the tumor from its surroundings. A ligature was applied, as on the other side. This controlled the bleeding. The irrigation was continued until I was sure that neither pus nor blood-clot remained, and the abdomen was then closed without drainage.

The history of the patient now taking ether is very much like the one related, and may be told in a few words before we begin.

CASE II.—She is thirty-nine years of age; married; several children, the youngest seventeen years. A number of years ago she had an attack of so-called inflammation of the bowels, but which, doubtless, was really inflammation in and around the right ovary. She never fully recovered from the first attack, and has had a series of relapses since. The pain complained of was in the right ovarian region principally, and was intense and radiating in character. Each attack would last for a number of weeks, during which her temperature ranged from 100° to 104°. She would then gradually improve and be able to go about, only to be attacked again from some exciting cause. Recently she has been very ill with another seizure, and now has constant pain in the right iliac and ovarian regions. She is emaciated and exhausted, and begs for relief by any possible means. Her menses are painful and the flow profuse.

Examination shows a tumor as large as a cocoanut and oval in shape occupying the right side of the pelvis and extending into the right iliac region. It is elastic and firm and gives a sense of obscure fluctuation. It is very tender upon pressure. The uterus is pushed slightly to the left, somewhat enlarged and fixed to the tumor. There is no evidence of disease of the left appendages. As stated, I have made a diagnosis of probable abscess of the right ovary.

The patient has been in the hospital two days and has been carefully prepared in accordance with my prescribed plan, with which you are more or less familiar. She has been etherized on

the operating-table, which I always prefer. I begin by making an incision about two inches in length low down in the hypogastrium. I incise the fascia at the side of the linea alba and then work my way to the peritoneum with the handle of the scalpel. Now picking up the peritoneum with a tenaculum I nick it with scissors and pass my finger within. The finger now elevates this delicate membrane while I further incise it with the scissors. These two retractors are now placed and the contents of the cavity exposed. I find the omentum adherent to the abdominal wall and pelvic organs.

Separating this carefully with the finger, the tumor is exposed to view and at once I begin to doubt the correctness of my diagnosis, for it presents the purplish, vascular appearance of fibroid tumor. On further dissection of the adhesions and closer examination, this vascular, glistening surface is found to be due to the peculiar relation of the broad ligament and Fallopian tube to the tumor. The hypertrophied tube and broad ligament are drawn tightly over the upper surface of an ovarian abscess, entirely obscuring the latter from view until I draw these organs forward with a retractor. I am now enabled to show you the peculiar gray-white surface which is characteristic of ovarian abscess.

This relation of the broad ligament to the tumor is of peculiar interest because it is almost the identical counterpart of yesterday's case, just described. The tumor is closely adherent to the posterior surface of the broad ligament and right side of the uterus, as well as to the cæcum and tissues deep in the pelvis. Its location and surroundings make it appear as though it were located within the folds of the broad ligament, but this is only apparent, for, as I continue the dissection, it is shown to occupy a position on the posterior surface, as stated above. The tumor is now partially severed from its attachments.

I will next puncture it with this curved trocar for the purpose of reducing its size, and we see the pus flowing freely. The sac being now empty, I will adjust the irrigating nozzle to the canula and refill the pus cavity with warm water. By this means I repeatedly fill and empty the sac, and thus get rid of all danger from contamination of the tissues by contact with the pus.

The dissection is now carefully continued. The attachment of the tumor to the broad ligament, uterus, and other tissues is so intimate and firm, that the greatest care and deliberation, regardless of time, are necessary. Undue haste in a case of this character is a crime. I have now accomplished the entire separation of the tumor, and you see there is no pedicle to ligate. This is because I have entirely separated it from the broad ligament and Fallopian tube. There is now a large, deep opening

in the space from which the tumor was removed, and there is considerable oozing from the raw surfaces.

The tube and broad ligament, although very large and vascular, are apparently healthy. I will simply pass a ligature deeply through the ligament, and tie upward close to the uterus. This controls the bleeding. The appendages on the left side are healthy, and I will, therefore, not remove them. As the irrigating water returns clear I will simply sponge the cavity and close the abdomen without drainage.

Technique. Drainage.—A few words regarding the technique, especially with regard to drainage, and I will close. I have for several years been teaching and writing against the unnecessary and excessive use of drainage in abdominal surgery, and have practically demonstrated that better results may be obtained by a technique which omits the drainage-tube in almost every instance.

Of my last two hundred abdominal sections for the removal of ovarian and tubal disease, in which I also include hysterectomies for uterine fibroids, the mortality has been less than 2 per cent., and I have used drainage in less than 2 per cent. of these cases. Nor did I refuse to operate in a single instance on account of the extreme condition of the patient or the size or character of the tumor, as these two cases indicate. My results were not as good when I used drainage more frequently, and of the three deaths in the series just mentioned, I drained in two. I do not charge the result, however, in these cases to the fact that I placed a drainage-tube, but to delay and trifling with a disease which is as fatal as the sting of an adder, and which is less benevolent because it is more lingering and torturing. One of the patients, as you doubtless vividly remember, was practically moribund from sepsis at the time of the operation. I merely made an incision emptying a sack of rotten pus, irrigated and placed a drainage-tube, with the hope that she might rally and recover sufficiently to endure completion of the operation later. She died, as we all anticipated, not as a result of the operation, bnt of delay in its performance. It is the memory of experiences such as these which causes the surgeon to grow warm in discussing them.

In Case I, I did not seek for the fistulous opening which had so long drained the abscess into the bowel, because I learned the lesson from a somewhat similar case, upon which I operated a few years ago, that the let-alone, non-meddlesome method is the best in such fistulous tracks; and I believe a drainage-tube in this case would have had a tendency to irritate and interfere with the closure of the fistula. That at least was the result in the case referred to above, in which a fecal fistula formed and did not close for months.

There are some points of interest in the pathology of these cases, but I have not time to discuss them. The practical lesson which we should learn from them is the emphasis with which they teach the extreme folly of trusting to measures less radical than the removal of the incurably diseased organs; and the organs should always be regarded as incurably diseased when pus is present. The time to operate, as a rule, is during the first attack. If such a course had been pursued in these cases the patients would have been saved years of suffering and the additional danger of operation under the most unfavorable circumstances, when the risk to life is far greater.

[Each of the patients made a good recovery and went home within five weeks after the operation. The first case had an attack of erysipelas and was quite ill for several days in consequence, but otherwise her recovery was uninterrupted. In the second case the temperature did not rise above 99°, and she sat up on the thirteenth day.]

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